

Maurizio Meloni's *Political Biology*: The hour of political biology: Lamarck in a eugenic key?

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In this review symposium, five scholars of history and philosophy of science and medicine take on the various challenges posed by Maurizio Meloni's *Political Biology* (Meloni, 2016a). These challenges are epitomized by what I call the *Meloni Thesis*. The thesis is that the discreteness of the biological and social sciences as bodies of knowledge depends on a hard nature/nurture distinction. Meloni argues that the hardness of this distinction was a late 19th century innovation of Francis Galton, who presented it as a cornerstone of his eugenics programme. Galton generally understood the distinction in terms of manipulable variables without too much ontological baggage. However, the distinction acquired metaphysical heft through the followers of August Weismann and Emile Durkheim in biology and sociology, respectively, in the 20th century (Meloni, 2016b). To be sure, both Weismann and Durkheim – like Galton – operated before Mendel's atom-like factor, popularized as the 'gene', came to dominate the research agenda on heredity. Nevertheless, the bio-social divide constructed around what is and is not 'genetic' served to marginalize the influence of Jean-Baptiste Lamarck, whose original account of the evolution of life implied that significant attempts by an organism to adapt to its environment left physical traces in its offspring. However, the recent emergence of an area of research in molecular biology broadly defined as 'epigenetics' is returning us to the broadly Lamarckian mind-set that prevailed prior to Galton. Yet, ironically, this development is serving to re-specify if not embolden Galton's original eugenic concerns, reversing various conceptual and political measures that have been taken since the end of the Second World War to suppress them.

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After a formal presentation of his thesis in Chapter 1, Meloni proceeds in roughly historical order according to the stages of the narrative just sketched. Chapter 2 explains how ‘hard heredity’ began to take hold in biology at the end of the 19th century even before widespread knowledge of Mendel’s work, while Chapter 3 focuses on Galton’s ambitious policy-oriented research agenda for determining the heritability of traits. Chapters 4, 5 and 6 explore how the hard/soft heredity distinction played out politically in the 20th century, as Darwin came to eclipse Lamarck as the evolutionist of choice among both biological and social scientists. The same Darwinian hard nature/nurture distinction that before the Second World War licensed the sterilization and even extermination of genetically irredeemable populations as unfit for human company, after the war was used to claim that humanity’s genetic make-up has remained intact sufficiently long as to make it irrelevant to matters of social policy and perhaps even social science itself. The same political fluidity also applies to the Lamarckian soft nature/nurture distinction, which prevailed before the hard distinction and – so Meloni argues – is likely to prevail in the future. On the one hand, a soft distinction provides little incentive to respect human populations as they are, especially given that environments are subject to continual change, which in turn alter their inhabitants. On the other hand, this very presumption of dynamism suggests that even the most ‘backward’ or ‘static’ population is redeemable given some appropriate intervention, which will eventually extend beyond healthcare and education to include epigenetic if not genetic manipulation. Chapter 7 brings the story up to date by considering the extent to which contemporary epigenetics licenses a Lamarckian revival. Much remains unresolved empirically, yet research generally points to a future in which various genetically relevant interventions will be feasible at various stages of an organism’s life cycle. Chapter 8 ends the book, stressing how already virtually every political ideology is trying to capitalize on this anticipated Lamarckian revival.

To be sure, *Political Biology* is the product of interpretive synthesis rather than original historical scholarship. Meloni does not pretend to compete with, say, Hannah Landecker who, working at the micro-level of epigenesis, has attempted to specify how social processes may be biochemically encoded (Landecker and Panofsky, 2013). Nor does he compete with Evelyn Fox Keller’s work at the macro-level, which has charted the culturally pervasive discourses that result from adopting either a ‘hard’ or a ‘soft’ hereditarian line (Keller, 2010). Instead, the Meloni Thesis is pitched, so to speak, at the ‘meso-level’, namely, the ground of disciplinary boundary construction and maintenance.

Indeed, *Political Biology* strikes a polemical note from the outset by arguing that longstanding interactions between the social and biological sciences have been occluded in discipline-based histories simply to avoid discussing eugenics (Meloni, 2016a: 7). Moreover, he sees some of the founders of the neo-Darwinian synthesis – Theodosius Dobzhansky and George Gaylord Simpson – as strategically highlighting the unique variability of the human population, which effectively delegated to the social sciences virtually anything of interest about *Homo sapiens* that happened in ‘recorded history’ broadly conceived – that is, the time characterized by artefactual remains (ibid.: 29–30). To be sure, evolutionary psychologists in recent years have ridiculed this *cordon sanitaire* approach to the biological and the social as the ‘Standard Social Science Model’

(Fuller, 2006: 198). But Meloni is no less critical of evolutionary psychology (and its progenitor, sociobiology), as well as the range of Foucault-laced positions associated with ‘biopolitics’, all of which claim to re-inscribe the biological in the social, but end up doing so in fundamentally ahistorical and apolitical ways (Meloni, 2016a: 19–23). Meloni suggests that the long shadow of Nazi Germany has effectively inhibited open discussion about the means and ends of (epi-)genetic intervention, even though our capacities in these areas really only took off with the molecular revolution in biology, a decade and more after Hitler’s defeat. In this respect, *Political Biology* can be read as a guide to the missing voices in this interrupted conversation.

But beyond rehabilitating eugenics, the Meloni Thesis speaks to the larger issue of rehabilitating Lamarck, whose vision of evolution remains the one most often pitted against Darwin’s. It is worth recalling why Lamarck is marginalized from modern evolutionary biology, despite having invented the very idea. He is typically accused of not merely empirical error but outright conceptual confusion. Perhaps the cleverest diagnosis has come from the anthropologist Gregory Bateson, who spoke of a confusion of ‘logical types’, a version of what is sometimes called the ‘fallacy of division’. Lamarck failed to see that what alters the distribution of traits in a population does not necessarily alter the traits of any member of that population, let alone all by some effort by that member (Bateson, 1979: 44–5). *Contra* Lamarck, ‘evolution’ is not an intended consequence but an emergent effect of this redistribution, which at the micro-level appears in terms of a differential reproduction pattern among individuals: some individuals flourish at being who they are, while others decline and eventually become extinct. And whether the ensuing redistribution of traits can be regarded as ‘progressive’ requires an additional shift in logical type, namely, one that encompasses population and environment as complementary parts of a comprehensive system with its own dynamics. This was the perspective adopted by Darwin’s great rival Alfred Russel Wallace in his own more ‘cybernetic’ conception of natural selection (ibid.: 43). Nowadays the term ‘Anthropocene’ has come to stand for this higher-order sense of ‘evolution’, which can be read as both a progressive and a regressive global tendency. Pierre Teilhard de Chardin would have been someone in Bateson’s day who exemplified a progressive sense of Anthropocene, one which tends to be overshadowed nowadays by more apocalyptic characterizations (cf. Karlsson, 2016).

Many features of Bateson’s take on evolution remain intriguing and surprisingly underexplored – not least his logical sorting of Darwin, Lamarck and Wallace in terms of capturing ‘intelligence’ at the individual, population and system levels, respectively. This is likely to prove useful in the sort of dialogue between Lamarck and eugenics that the Meloni Thesis suggests. However, what makes Bateson’s diagnosis of Lamarck in particular intriguing is that he presumes that Lamarck and Darwin were talking about the same class of phenomena but that Lamarck adopted an insufficiently detached point of view. To believe Bateson, Lamarck’s error is somewhat like what social psychologists call the ‘Fundamental Attribution Error’, whereby we tend to explain our own successes in terms of what we were trying to do all along, whereas we explain the successes of others in terms of contextual factors, which amount to their merely having done the right thing at the right time and place (Nisbett and Ross, 1980). In practice, this asymmetry often means that we are much better explaining the behaviour of others than of ourselves.

In particular, we are prone to self-serving superstitions which overestimate the extent to which reality conforms to our intentions, while too easily dismissing setbacks as simply unlucky breaks. This applies no less to Lamarckian evolutionary explanations than to ordinary narratives of self-justification (Bateson, 1979: 151–2). In short, we are ‘Lamarckian’ about ourselves and ‘Darwinian’ about others – and, interestingly, we deem the latter more ‘realistic’.

Bateson’s diagnosis of Lamarck’s shortcomings comports well with today’s tendency – facilitated by the rise of evolutionary psychology – to explain (away) persistent scientific errors in terms of deep-rooted cognitive biases. In fairness to Bateson, it should be added that he was very alert to epigenetics via his friend Conrad Waddington, who invented a pre-DNA version of the field in experiments showing that fruit fly pupae exposed to ether vapours resulted in successive generations of abnormal four-winged offspring – even in flies whose descendants had not expressed the abnormality in the first generation (ibid.: 159–60). However, Waddington – and Bateson after him – interpreted these findings within the neo-Darwinian orthodoxy as cases where the environment (albeit experimentally constrained) elicited propensities already present in the population of organisms. This is in contrast to those philosophers and scientists – from Bergson to Lysenko – who have claimed the mantle of Lamarck well into the 20th century under such rubrics as ‘orthogenesis’ and ‘vitalism’. These self-styled Neo-Lamarckians argue that organisms possess an *élan vital* which drives the whole process of development. They make a direct link between the levels of the part and the whole in the life process that Darwinians refused to do.

To be sure, until recently (and here the work of Peter Bowler has helped to turn the tide), historians of science have tried to save Lamarck from his vitalist admirers by portraying him as somewhat closer in spirit to Darwin, albeit mistaken in ways that Darwin and his successors, such as Waddington and Bateson, have pointed out. For example, Charles Gillispie (1958) stressed the ‘emergent’ character of Lamarck’s account of evolution, which traces the ‘acquired characteristics’ to the environment which triggers the organism to release latent (presumably genetically inscribed) tendencies, an interpretation which scientifically domesticates Lamarck’s vexed concept of ‘effort’. Relevant here is one of Lamarck’s own principles of comparative psychology, whereby no mental powers should be ascribed to an organism whose nervous system is insufficient for its realization. All of this seems to be just as materialistic as Darwin, with the exception that Lamarck permitted too much transit between what Friedrich Weismann identified in the 1880s as the germline and the somatic line – or genotype and phenotype – of the organism.

Political Biology can be read as using the recent rise of epigenetics to revive this materialistic version of Lamarck against the standard neo-Darwinian critiques that appeal to the ‘Weismann barrier’. But still one may ask whether this truly does justice to Lamarck’s rather vitalistic *sentiment intérieur* (also called *sentiment d’existence*), which he identified with the conduction of electricity through the nervous system, which in response to environmental pressures generates an increasingly complex differentiation of life functions – most so in humans (Ginsburg, 2011). Implied here is an idea of the brain as a vast untapped energy source waiting to be activated (Lamarck’s word is *besoin*). To get the full measure of this idea we may need to imagine that in the past

the environment has staggered the brain's development by the relatively slow pace at which it activates the available nervous potential. However, as the brain becomes more complex, it is capable of taking greater control over its own development, perhaps even (as Teilhard de Chardin thought) incorporating the organism and the environment as complementary parts of one expedited cybernetic system of the sort Wallace had imagined as evolution's overall direction of travel. Indeed, assuming the centrality of 'electric fluid' to Lamarck's vision of biological progress, we may regard the brain as destined to be the organic platform for indefinite self-extension through technological enhancement, in which case humans could easily evolve into a cyborg or some other 'transhuman' form, even leaving its carbon-based roots altogether (Fuller, 2012: Epilogue).

This more robust reading of Lamarck's relevance to today's world can also be found in the pages of *Political Biology*. It is a reading that makes, say, CRISPR-based gene editing look like a prosthetically enhanced version of the efforts that earlier organisms took to memorialize their significant encounters with the environment through 'acquired characteristics'. The idea that what we nowadays call 'memory' and 'heredity' are linked goes back to Plato's *Theaetetus*. Here Socrates imagines that each person's inheritance is the product of all human experiences having been impressed to varying degrees on each new body, which then serves to shape the person's unique psychological make-up. Socrates compares the medium to wax, perhaps a wax tablet on which experiences are etched. From this image has flowed ideas of a 'collective unconscious' that might be recovered by, say, Jungian psychoanalysis, as well as of a 'genetic code' which might provide a partial record of the lived past and constrain the prospects of the living. In the late 19th century, these ideas reached their peak, as promoted by the physiologist Ewald Hering and the psychologist Theodule Ribot (Matzel, 2002). To be sure, they were being promoted just before Mendel's approach to genetics became widely known and interpreted to support the Weismann Barrier.

Nevertheless, as Meloni observes, epigenetics has called into question the genome's 'transgenerational stability'. In particular, he points to research that suggests that organisms self-trigger behaviours which ancestrally proved beneficial to survival by re-enacting the conditions that first elicited them, a phenomenon known as 'niche recreation' (Meloni, 2016a: 198–9). To be sure, we do not know the extent to which the epigenome constitutes 'historical memory: the molecular archive of past environmental conditions' (ibid.: 209). However, the current state of biology provides some basis for thinking that we increasingly live in such a robust Neo-Lamarckian world. The Weismann Barrier is merely a 'barrier', that is, something set to be overcome in the fullness of time. As humans live longer and the official period of maturation (i.e. expected age at school leaving, first steady job, marriage, childbirth, etc.) increases, there is more time for parents, teachers, friends and strangers to both reproduce – if not amplify – aspects of the conditions that elicited specific desirable responses in previous generations and prevent those conditions which elicited undesirable responses.

Potentially helpful here are two concepts, one from the social and the other from the biological sciences, which draw attention to the capacity of populations to stabilize or alter their selection environment with long-term effects: Alfred Kroeber's 'superorganic' and Richard Dawkins' 'extended phenotype' (Fuller, 2016). Kroeber's way of putting it

is especially perspicuous: the longer we live after producing offspring, the less time our offspring will need to spend directly learning our lessons because we will have spent our time creating indirect ways for them to acquire that knowledge more quickly (i.e. books and other artefacts). Transhumanists nowadays call these ‘social enhancements’, which in some cases may overlap with more direct biological interventions (Cabrera, 2015). Some recent neo-Lamarckians have seen in this train of thought the thermodynamic basis for a principle of evolutionary *progress*, the very idea which – after divine creation or intelligent design – has been most anathematized by neo-Darwinists (Por, 2011).

The first of our five scholars to tackle the complexity of the Meloni Thesis and political biology more generally is *Chris Renwick*, who returns us most explicitly to the original Galtonian context of political biology, updating many of the great Victorian’s progressive political interests for our epigenetic age. Next, *Melinda Bonnie Fagan* conducts a forensic examination on the key historiographical assumption of the Meloni Thesis, namely, that epigenetics marks a return to a more Lamarckian sensibility in biology. She argues instead that the recent prominence of epigenetics is better explained in terms of neo-Darwinian researchers discovering that ‘gene expression’ turns out to be more complex than the revolution in genomics had promised. The next two essays are concerned with the implications of the Meloni Thesis for bioethics. *Sarah Chan* sets the normative horizons for the new epigenetics along the broadly ‘transhumanist’ lines that I have been pursuing here, which seriously challenge our intuitions about human/non-human, artificial/natural and even politics/science. *Nathan Emmerich* follows with a reflection on the intellectual responsibility of those who speak publicly on these normatively charged biological matters, which occurs at a time when the field of bioethics is widely seen as being in need of renewal. Finally, *Stephen Casper* challenges the philosophical spirit in which the Meloni Thesis is framed and defended. He takes particular aim at what he regards as the ‘reductionism’ which Meloni appears to take on board uncritically from advocates of both sides of the debate between ‘hard’ and ‘soft’ hereditarian thinkers and researchers.

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